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A NOTE ON THE ORAL ADMINISTRATION OF CHLOROPHYLL TO THE DOG

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INTRODUCTION

The use of chlorophyll as a deodorant when administered orally to the human subject has been a topic of much discussion during recent years and Westcott (1950) and Dijkstra (1951) have advanced evidence of its efficacy in a variety of conditions (see also Mitchell, 1951). De Kruif (1950), in a popular article published in the U.S.A., and more recently Chilman (1952) in this country, have claimed that in the dog the oral administration of chlorophyll is capable of reducing halitosis. Chilman has extended these observations to the cat, and has stated further that chlorophyll tablets are effective in reducing the malodour associated with cases of otitis in both species. It has moreover been stated in commercial literature that the oral administration of chlorophyll to bitches "in season" prevents the attention of male dogs and enables such bitches to be exercised.

The following clinical observations were made during the course of a wider investigation into the deodorant properties of chlorophyll. They are reported here as they appear to be of significance in relation to some of the above claims.

The chlorophyll used was medicinal chlorophyll, water-soluble, complying with the description in the monograph on Chlorophyllum in the B.P.C., 1934.

HALITOSIS AND BODY ODOUR

Observations were made on six dogs, the life history of which was in four cases accurately known and all of which were maintained in experimental kennels and subjected to routine clinical examination. These animals were (1) a male Golden Retriever aged 14 months and weighing 74 lb.; (2) a male Golden Retriever aged 14 months and weighing 75 lb.; (3) a mongrel terrier aged approximately 20 months and weighing 42 lb.; (4) a mongrel terrier aged approximately 30 months and weighing 49 lb.; (5) a male Scottish terrier aged 14 months and weighing 21 lb.; (6) a female Dachshund aged 40 months and weighing 22 lb. The animals were all in apparent normal health at the time, although animal (6) developed diabetes mellitus some five months later. Their diet at the time of the tests was varied so as to include the following items, fed singly or in combination: cooked rabbit, proprietary canned dog food, dog biscuits (hound meal), wholemeal bread, milk and water.

The preparation was administered in the form of tablets each containing 50 mg. of water-soluble chlorophyll. In the initial series of tests each animal was given single dosages of 50, 100 and 150 mg. chlorophyll on separate days. The tablets were administered in the morning, after fasting overnight, after the breath odour had been checked by a panel of observers. The whole series was then repeated with tablets given approximately 30 minutes after the main daily feed, which in some cases resulted in a definite degree of unpleasant breath odour.

The results naturally were somewhat variable, but broadly speaking it was agreed by the testing panel that a demonstrable improvement in breath odour occurred with suitable dosages. A single tablet of 50 mg. almost invariably improved breath odour in the case of the small dogs (5) and (6), and was sometimes effective in the case of the remaining four animals. A further series of tests was then conducted with half-tablets (*i.e.*, 25 mg. doses) and eventually it was decided that a tablet containing 33 mg. chlorophyll was a suitable size for routine purposes. One 33 mg. tablet was found to give a reasonable degree of reduction of breath odour in the case of the small dogs (5) and (6). Doses of the order of 50 to 100 mg. were effective in the case of dogs (3) and (4), and doses of the order of 100 to 150 mg. were effective in dogs (1) and (2).

In all these tests a successful result was recorded when there was a detectable improvement in breath odour commencing within 30 to 60 minutes of dosing. In such cases improvement was maintained for about four to six hours, after which there was a gradual deterioration.

These animals were of course normal, but even so there was often a marked halitosis and the breath was definitely offensive when smelt with the observer's nose held close to the dog's mouth. There was considerable variation in the usual breath odour between dog and dog and from time to time in the same dog, and often but not always there was an unpleasant odour *post-prandium*. The effect of chlorophyll seemed to be independent of these variations, and after a positive result the breath became quite "sweet." There was no evidence of dental or oral disease and it was presumed that the odours were of gastric origin.

The effect of high dosage was investigated by administering up to 600 mg. chlorophyll at one time. Such dosage did not appear to confer any advantage, and even in the case of the large dogs (1) and (2) was not superior to a dosage of the order of 100 to 150 mg.

In the case of "body odour" there were differences of opinion among the panel of four observers. Three of these recorded no detectable improvement in any circumstances and all were agreed that superficial odours associated with the adherence of dirt or mud to the coat were unaffected at any level of dosage. The remaining observer recorded an improvement in "normal doggy odour," even in the case of the longer-coated animals (1), (2) and (5), when smelt in the lumbo-sacral region. This was at dosages similar to those recorded in the case of breath odour.

BITCHES IN PRO-OESTRUS AND OESTRUS

For these trials tablets each containing 33 mg. chlorophyll were employed. Three animals were available, and the data obtained were as follow:—

(7) Black Labrador aged four years (weight, 59 lb.). This animal had exhibited pro-oestral "bleeding" for at least six days prior to commencement of the test on 14.1.52. From this date until 20.1.52, during which time a san-

guineous vaginal discharge persisted, 4 by 33 mg. chlorophyll tablets were administered daily, but male dogs in the kennels remained definitely interested and there were two regular "visitors," *i.e.*, male dogs from outside the premises who each day towards the end of pro-oestrus endeavoured to enter the bitch's living quarters. On 20.1.52 a male stud dog was placed with the bitch and both animals immediately indulged in "mating preliminaries" and had to be restrained forcibly from mating. On the following day vaginal "bleeding" had diminished, and the daily dosage of chlorophyll was raised to 6 by 33 mg. tablets. A further test on 24.1.52, with the same stud dog, again indicated a desire to mate on the part of both animals. The chlorophyll administration was continued until 5.2.52, by which date vaginal discharge and vulval tumescence had abated, and "season" as usually understood by dog-owners was over, and the bitch was definitely in metoestrus (see Evans & Cole, 1931). There was evidence of interest on the part of male dogs up to at least 3.2.52.

(8) Golden Cocker spaniel aged eight and a half months (weight, 25 lb.). Pro-oestral bleeding was noted on 4.3.52, and there was definite interest on the part of male dogs Nos. (1) to (5) above, with which she had been quartered. The bitch was therefore removed to a veterinary establishment and was dosed with 2 by 33 mg. chlorophyll tablets daily on 4.3.52 and 5.3.52; 3 by 33 mg. tablets from 6.3.52 to 9.3.52 inclusive, and 4 by 33 mg. tablets from 10.3.52 to 31.3.52, by which date all oestrus phenomena had subsided. Attractiveness for male dogs continued throughout this period, and during the period commencing with the abatement of pro-oestral bleeding several tests with a male dog not normally employed for stud purposes showed a willingness to mate on the part of both animals.

(9) White French Poodle aged nine years (weight, 55 lb.). This bitch belonged to an employee in a veterinary practice and her previous behaviour during pro-oestrus and oestrus was well known. Pro-oestral bleeding commenced on 20.4.52. From this date to 26.4.52 a daily dose of 4 by 33 mg. chlorophyll tablets was administered. Attention from male dogs continued and the daily dose was raised to 6 by 33 mg. A test on 30.4.52 with a male not normally employed for stud purposes showed that both animals were willing to mate. All vaginal discharge and vulval tumescence ceased somewhat abruptly on 3.5.52, whereas during previous "seasons" external evidence of oestrus had persisted for some 12 to 14 days longer. This change was, however, attributed to the advancing age of the bitch and not to any action of the chlorophyll. The bitch remained attractive to male dogs until the vaginal discharge ceased.

Discussion

Our observations support the contention that water-soluble chlorophyll, in appropriate dosage by mouth, is capable of controlling the halitosis that frequently occurs even in normal dogs. We cannot, however, subscribe to the ability of chlorophyll to control odour associated with the presence of extraneous material in the coat, and only one out of a panel of four observers could detect any effect whatsoever on "body odour."

In three carefully observed cases we have found no evidence whatsoever that water-soluble chlorophyll reduces the attractiveness of the bitch in pro-oestrus or oestrus for the male dog, and when either a stud dog or a male dog not normally employed for stud purposes has been introduced at an appropriate time there has been no lack of willingness on the part of either partner to indulge in mating preliminaries. It would therefore seem most unwise to rely on water-soluble chlorophyll as a means of preventing the attention of male dogs.

It should, of course, be emphasised that the trials reported here were conducted with chlorophyll as specified in the introduction, suitably formulated into compressed tablets. They are not intended to refer to products commercially available in the U.S.A. and Great Britain. We have, however, repeated the observations on halitosis with two proprietary brands of chlorophyll tablets and so far as dosage could be calculated the results did not appear to differ materially from those noted with the preparation formulated by us.

Summary

(1) A preparation containing water-soluble chlorophyll, when administered in doses of from 33 to 150 mg., was found to be capable of controlling the "normal" halitosis of six dogs ranging in weight from 21 to 75 lb.

(2) The effect of this dosage of water-soluble chlorophyll upon odours associated with the coat and adherent material was, however, negligible.

(3) Repeated administration of water-soluble chlorophyll to three bitches during pro-oestrus and oestrus did not in any way reduce the attention from male dogs, nor prevent attempts to mate when male dogs were placed with the bitches during actual oestrus.

Acknowledgments.—We wish to acknowledge the co-operation of Mr. Ian G. Hall and Mr. L. Cooke, M.R.C.V.S., of Huntingdon, in facilitating the trials with oestrous bitches.

References

British Pharmaceutical Codex, 1934, p. 320.
Chilman, G. F. (1952.) *Vet. Rec.* **64.** 282.
De Kruif, P. (1950.) *Reader's Digest.* Sept. issue, pp. 87-90.
Dijkstra, A. (1951.) *Neder. Tijd. Genees.* **95.** 208.
Evans, H. M., & Cole, H. H. (1931.) *Mem. Univ. Calif.* **9.** 65.
Mitchell, W. (1951.) *Soap, Perfumery & Cosmetics.* **24.** 1235.
Westcott, F. H. (1950.) *New York State J. Med.* **50.** 698.

ANTIBIOTICS IN ANIMAL NUTRITION

At a joint meeting of the physiology and agriculture sections of the British Association, Dr. S. K. Kon, of the National Institute for Research in Dairying, introducing a number of papers on the subject, said that the United States allowed the inclusion of antibiotics as a factor making for faster and increased growth in animals. This, however, was not allowed in Britain, though it was expected that the Agricultural Research Council would come to a decision on the matter soon. Meanwhile, we could not make use of the American work on antibiotics in animal nutrition because of the different feeding methods and diets used in the two countries, but must work out our own solution. We did not know so far, he went on, that the antibiotic could speed growth, or at any rate weight increase, or increase the efficiency of food utilisation in pigs and poultry.

Describing the mode of action of antibiotics Dr. M. E. Coates reported that her chicks showed a jump in weight when antibiotics were present in the food. However, another research worker, attempting to repeat Dr. Coates's experiments at a place where chicks had not been reared before, reported a startling failure to stimulate growth with penicillin. Investigation of this suggested that antibiotics had the effect of inhibiting an endemic infection which restrained growth under conditions where chicks had been regularly reared, but antibiotics had no effect on growth in healthy conditions.

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Weekly Wisdom

There is one thing which is vanitas vanitatium, *and it is this thing: to make an easy operation look hard. Surgical rectitude considers both the needs of the profession as well as those of the patient: both are injured when a simple procedure is flim-flammed into appearing difficult; when an ingrown toenail or a group of haemorrhoids, or a sebaceous cyst of the scalp, or a pair of tonsils are removed with a barrage of preparation, instrumental display and everything except a fanfare of trumpets.*—Markowitz, J., *Experimental Surgery*, p. 43.

WITH THE BRITISH EQUESTRIAN TEAM AT THE XVth OLYMPIAD

BY

BRIGADIER E. S. W. PEATT, O.B.E., F.R.C.V.S.

The Equestrian Events at the Olympic Games at Helsinki were three in number :

1. The Grand Prix de Dressage on July 28th and 29th.
2. The Three-Day Event, July 30th to August 2nd.
3. The Grand Prix des Nations, on August 3rd.

Great Britain had no entry in the Dressage, but had a team in each of the other two :

The Three-Day Event Team.—Mr. J. R. Hindley riding his own Speculation.
Mr. A. E. Hill riding Major J. Miller's Stella.
Major L. Rook riding Mrs. J. R. Baker's Starlight.
Reserve horses—Mr. and Mrs. P. A. Hutton's Dandy.
Miss Margaret Hough's Bambi V.

The team originally selected included Captain M. Naylor-Leyland riding the Countess of Dudley's Crispin, but the day before the team left England he developed chicken-pox and so the reserve rider, Major Rook, took his place and Starlight replaced Crispin.

The Grand Prix des Nations Team.—Lieut.-Colonel H. M. Llewellyn riding Foxhunter.
Mr. H. M. White riding Nizefella.
Lieut.-Colonel D. Stewart riding Mr. E. Holland-Martin's Aherlow.
Reserve rider—Mr. G. B. Robeson.
Reserve horses—Mr. Robeson's Craven A. Miss Mary Whitehead's Nobbler.

Both the British teams were taken to and from Helsinki by air in a York aircraft of the Lancashire Aircraft Corporation, as was also the Canadian team, the same plane making three double flights. It was fitted with five padded crates, two forrard, two amidships and one aft ; the two horses forrard were loaded first, facing forwards, then the two amidships were backed into their crates facing aft, and the fifth horse backed into his crate facing forwards. The crates were fitted with belly bands of webbing to prevent the horses lying down, which they are prone to do if the plane drops in an air pocket. We did not use them as the Canadian team had trouble with one horse which strongly objected to the belly band.

I accompanied the Three-Day Event team which left from Filton Aerodrome on July 24th and returned on August 6th. The horses gave no trouble on loading, but Starlight, in the aft crate, got very excited during the take-off, kicking, plunging and sweating with fright. As soon as we were airborne he settled down, his girl groom, Miss Joyce Whittaker (one of the few people who can control him), sitting on the floor beside him throughout the flight of seven hours and feeding him with carrots and sugar. I attributed his fear to the fact that he could see the runway through the port-hole beside his head, and on the return journey we covered it up during the take-off and he behaved perfectly.

When loaded, the plane contained five horses, about 2 tons of kit, forage, etc., the crew and the following 10 members of the team : the three riders, Captain Collings (trainer), Herr Waetjen (dressage instructor), Mr. Ffitch (head lad), three girl grooms—the Misses Joyce Whittaker, Wendy Jones and Margaret Hough—and myself (veterinary officer). There was little room to move about, and it was difficult to make one's way from one end of the plane to the other. Miss Hough, who is the owner of Bambi V, stipulated as a condition of loaning the mare to the B.H.S., that in the event of her being chosen she should be permitted to accompany her to Helsinki. The flight was uneventful except that we went up to nearly 14,000 feet to avoid storms.

On arrival at Helsinki we were met by the Director-General of the Finnish Army Veterinary Service and a full colonel ; the horses were taken 10 miles in horse boxes to the stables at Ruskeasuo, which consisted of excellent wooden boxes erected in the largest riding school I had ever seen ; it measured 150 by 50 yards.

When the jumping team arrived safely on July 27th, an amusing incident occurred ; both teams had taken chopped hay in sacks, which the Finnish authorities confiscated, but on Colonel Llewellyn telling them, through an interpreter, that Foxhunter might not eat any other hay, there was consternation and after a brief discussion they let Foxhunter's sack of hay through. Incidentally, Foxhunter travelled in the tail of the plane in a very large crate, especially made for him, as he objects to a narrow one and kicks and lies down. As the plane starts to move he carefully places each foot in a corner of his box and maintains this position throughout the journey.

Our three girl grooms, who were joined by two more, Miss Madelene Weeks and Miss June Le Tall, caused quite a sensation and the male grooms of other countries fell over themselves trying to help. One morning, as I arrived at the stables, Wendy appeared pushing an enormous wheelbarrow full of manure. The cynosure of all eyes, she attempted to run it up a ramp into a truck and stuck half way ; immediately there was a mad rush of soldiers to help which caused her to subside on the ground in helpless laughter.

During the few days before the Equestrian events started both teams continued training. On July 27th we walked the steeplechase course of 4 km. and the cross-country of 8 km. with 34 fences. The steeplechase fences were well made and sloped on both sides as all, except two, were jumped from both directions, the horse jumping 13 fences in all, including a water jump, open ditch and wall with sods on top. The cross-country fences were all of the maximum height of 1 metre 20 (in fact, two were higher) ; there were many spreads of up to 12 feet and some of the jumps were awkwardly placed. The majority were made of silver birch tree trunks and were quite unbreakable. The general opinion was that although a formidable course, it should suit our horses and as it turned out, the British and German teams were the only ones in which all three horses jumped the course without a fall at a fence or a refusal.

Four fences in particular were difficult :

No. 11 : A single rail made of tree trunks in a semi-circle with a wide ditch in front and a path running away on the left, inviting a horse to run out. The approach was awkward as one came on the fence unexpectedly down a path leading out of a wood. It was here that the two Irish horses, Emily Little and Cuculain, fell and Speculation lost 20 points for deviating from the course although he did not stop.

No. 26 : A bank with 10 feet of water on the landing side.
No. 27 : A wide ditch with a fence of staggered stakes on the far side.
No. 28 : A pole on the edge of a sand pit with an up-hill approach so that one appeared to be jumping into space until the last stride.

It was noticeable that most of the difficult fences were towards the end of the course. Whilst walking round through woods and fields it was peculiar that there were no birds to be seen or heard. I remarked on this to a Finnish gentleman, who replied, " Oh, there are birds but as they start singing at 2 a.m. no doubt they are now resting."

The Grand Prix de Dressage

The Grand Prix de Dressage was held on July 28th and 29th in a most attractive arena of about 1½ acres of green lawn surrounded by trees, with the jury box at one end and a stand at the other. There were 27 entries from 10 nations, including eight teams. The test was a very difficult one and some outstanding performances were seen. Sweden won the individual event with Master Rufus, ridden by H. St. Cyr, and the team competition, by having their other two horses placed fourth and eighth. It is of interest to note that Master Rufus, a good-looking chestnut horse, was originally a Three-Day Event horse and won that event at the Nordic Games last year, ridden by Baron Von Blixen-Finecke, who rode the winner, Jubal, at these Olympic Games. Second, individually, came Mrs. L. Hartel, of Denmark, riding Jubilee. This lady gave a beautiful performance, all the more noteworthy as she has had infantile paralysis and has to be lifted on to her horse. A. Jousseaume, of France, on Harpagon, gained third place. In the team event, Switzerland was second and Germany third.

The Three-Day Event

The Three-Day Event got under way on July 29th when the preliminary veterinary examination took place ; all our horses trotted up sound but the horses of many other nations showed signs of wear with pottery action verging on lameness ; however, only one horse was rejected and replaced by a spare.

Originally there were 63 competitors (21 teams), but eventually 59 horses started (19 teams) and two individual entries. Great Britain drew 21 in the starting order so our horses went last in each phase, our first horse 21st, second 41st, and third 59th.

The Dressage Test started at 7 a.m. on July 30th. Mr. Hindley, on Speculation, appeared in the arena at 3 p.m. and did an excellent test until towards the end when he halted too abruptly and the horse became upset and for a few moments refused to strike off again. This occurred twice with consequent loss of marks and he was given 145·80 penalty points and placed 31st.

Stella and Starlight did their tests the next day ; the former, beautifully ridden by Mr. Hill, did the best she has ever done and much to everyone's surprise was given 126·33 penalty points and placed 18th. We thought she should have been much higher. Starlight, who is temperamental and inclined to hot up, was quietly ridden by Major Rook doing a smooth test but lacking in impulsion and being placed 26th, with 137·33 penalty points.

At the end of the dressage, the Italian team were first with 335·9, Great Britain ninth, and well placed with 409·4.

The second day of the event, the Endurance, Speed and Cross Country, started at 7 a.m. on August 1st, the complete distance to be covered by each horse being 36 km. (21 miles), divided into the following phases :

Phase A : 7 km. over roads and tracks to the racecourse. Time allowed, 29 minutes 10 seconds.
Phase B : 4 km. steeplechase over 13 fences. Time allowed, 6 minutes 40 seconds.
A maximum of 36 bonus points could be obtained on this phase, three points being allotted for each commenced period of 5 seconds under time.
Phase C : 15 km. over roads and tracks. Time allowed, 62 minutes 30 seconds.
Phase D : 8 km. cross-country over 34 fixed obstacles of a maximum height of 1 metre 20 and maximum width of 4 metres. Time allowed, 17 minutes 46 seconds. Maximum bonus in this phase was 72 points, three points for each commenced period of 10 seconds.
Phase E : 2 km. on the flat at a canter. Time allowed, 6 minutes.

In all phases severe penalties were imposed for being over time.

Service stations were located at the start and at the end of phases A, C and E, where horses were permitted to stop, if ahead of time, and be rubbed down. Veterinary officers with first-aid equipment and farriers were also situated at these points.

As veterinary officer to the British team, I had a car at my

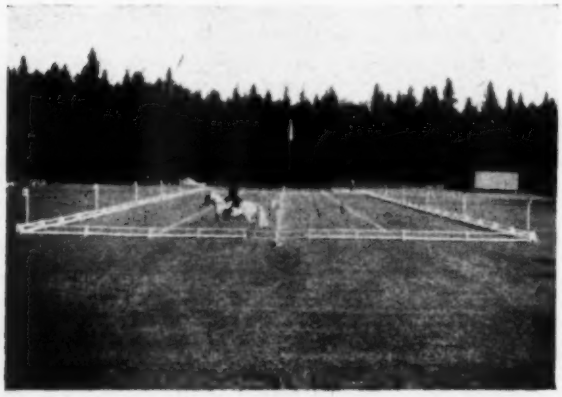


Fig. 1.—Dressage Arena: Speculation and Mr. Hindley.

Fig. 2.—Cross-country, first fence—Speculation.

disposal and was able to follow each of our horses from phase to phase and be present at the service stations when they arrived.

When Speculation started on Phase A, I got to the racecourse in time to see three other horses go round before he arrived. First of the three was a Russian, riding a very nice, though small, Arab stallion ; he started as if it was a 5-furlong race and had his horse exhausted towards the end, struggling over the last few fences to finish in the best time up till then, 5 minutes 29 seconds. Next, Mr. Wofford (U.S.A.), on a big thoroughbred horse, went a good gallop, riding his horse perfectly, his time being 5·40 (full bonus). A Finn came next, immediately before Speculation, and unfortunately he fell at the open ditch, pulling his bridle off. By the time he got going again, Mr. Hindley had started on Speculation and they passed each other going in opposite directions between the last two fences. Speculation, jumping in great style and beautifully ridden by Mr. Hindley, appeared to be going slowly, but this horse has a very big stride and spreads himself over the fences. To the surprise of those who did not know him, he did the fastest time of the whole competition, 5·19. He kept this high standard up for the rest of the day. I saw him over the first two fences of the cross-country and met him at the finish, little distressed. His only mistake was at fence No. 11 where, riding to orders, Mr. Hindley swung to the left to get straight for the jump and was penalised 20 points for deviating from the course ; even so, he got a bonus of 34. Stella, ridden perfectly by Mr. Hill, got almost full bonus on the racecourse and completed the cross-country without a mistake for a bonus of 69.

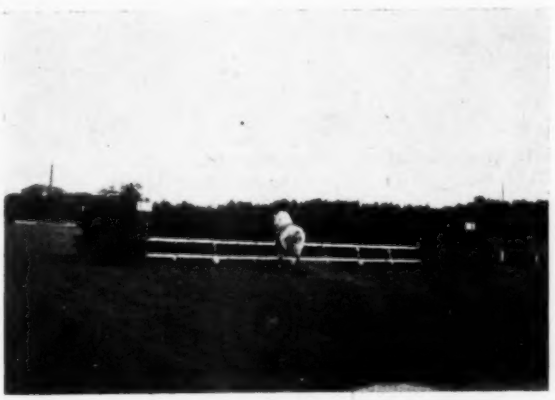


Fig. 3.—Racecourse: Speculation and Mr. Hindley.

The Rook-Starlight Tragedy

Our hopes were now high, as at least 10 teams had been eliminated and it only was necessary for our last horse, Starlight, to complete the course in reasonable fashion to put us " in the money."

On the racecourse he went a great gallop and got full bonus but chanced three fences, going right through the open ditch and Major Rook did well to stay on board. He was 10 minutes ahead of time at the end of Phase C and had time to be unsaddled and rubbed down. I watched him across the first two cross-country fences, which he jumped with feet to spare, and rushed to the finish. Waiting there for our last horse to finish was a most trying experience, and when Lieut.-Commander John Orham appeared running towards us as he had done for each of the other horses coming from the end of Phase D by a short cut, our hopes soared. He arrived breathless, and said to me, " Stand by, Rook has had a crashing fall on the flat but is finishing and I think the horse is hurt." Another agonising wait of 2 minutes and Starlight appeared, galloping strongly, with Rook covered in dust and his face streaming with blood. He pulled up and attempted to dismount before entering the unsaddling enclosure, whereupon the whole crowd shouted " No ! No ! " He apparently heard this and continued into the enclosure and unsaddled and weighed out. He had no recollection of his fall and was still concussed when he finished.

This fall on the flat, which put the British team out of the event, occurred 120 yards from the last fence and 150 from the finish of Phase D. Galloping fast along a path bounded on one side by a wood and on the other by a cornfield, Rook deviated slightly to avoid an overhanging branch when going round a corner ; as a result, the horse put one foot in the edge of the corn and, as luck would have it, into an irrigation ditch about 2 feet deep. He recovered from this but went into a second one a couple of strides farther on and fell heavily, rolling into the corn. Major Rook was completely knocked out ; the horse was caught by a Finnish soldier and two spectators carried Rook to him, where he recovered sufficiently to remount ; the reins were put into his hands and the horse turned, facing the last fence, which

Fig. 4.—Bush at corner where Starlight fell, showing ditch with hat on stick.

Fig. 5.—Starlight and Major Rook finishing after fall on flat.

he jumped perfectly, going on through the finishing posts of Phase D. Then, instead of turning sharp left, he went straight on, crossing a deep ditch and nearly falling off, got off the course and went the wrong side of a flag and was in consequence disqualified. After this, he got into another cornfield and had to come back 400 or 500 yards to get on the course again, guided by Colonel Llewellyn, who had run after him through the corn.

Even if he had not been disqualified, our hopes ended with the fall as Starlight was very lame with a bruised shoulder and jarred fetlock and was unfit to compete in the show jumping next day. With a loss of time of about 2 minutes in Phase D, Starlight still had a bonus of 60 ; consequently, if he had finished without a fall he must have had a bonus of approximately 100, which would have placed our team, easily, second and Rook third, individually, with a great chance of a medal.

There were some nasty falls over the steeplechase course, and H. Vigil (Chile) had to retire as his horse broke down. The cross-country took its inevitable toll and at the end of the day 23 out of the 59 starters had been eliminated. All three Dutch horses were eliminated for refusals, one of their horses developing haemoglobinuria. R. Mosqueira (Chile) had two falls but finished the course. Two members of the Argentine team failed to finish and Bulgaria and Rumania did not get any of their horses round. Spain had one horse eliminated, and Italy, the leading team after the dressage, two. Canada, who were out to gain experience, did well to get two horses round ; the third, ridden by the son of an old friend of mine, T. Gayford, fell at the first cross-country fence, was remounted but eliminated towards the end of the course. Switzerland got two horses round and Russia one.

Only six teams remained intact at the end of the day :—

1. Sweden ...	−160·01	4. Denmark ...	−617
2. Germany ...	−225·9	5. U.S.A. ...	−647·16
3. Portugal ...	−609	6. Ireland ...	−893·52

The two British horses, who finished, totalled 169·13, and assuming that Starlight had finished with a bonus of 100, our team would have totalled − 206, ahead of Germany and a long way in front of any other team.

The individual placings were :—

1. H. G. F. N. Von Blixen-Finecke (Sweden), on Jubal	−18·33
2. N. O. Stahre (Sweden), on Komet ...	−27·66
3. G. Le Frant (France), on Verdun ...	−44·05

Mr. Hill, on Stella, was 7th ; Mr. Hindley, on Speculation, 13th.

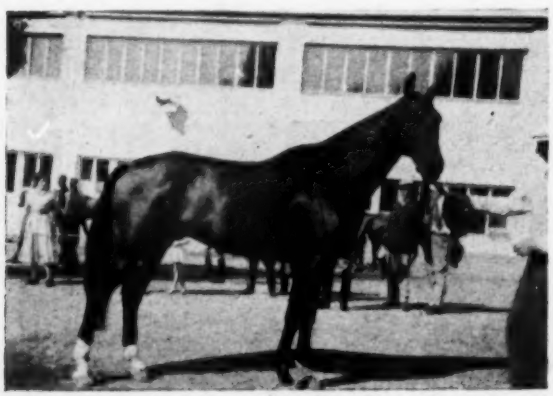


FIG. 6.—Jubal (Sweden), the winner.

There have been many excuses and hard-luck stories about competitors in the XVth Olympiad, but I doubt if any can compare with that of the British Three-Day Event team, who would undoubtedly have had a silver medal for the team, while Major Rook stood a good chance of a silver or even a gold one had he not fallen, so unluckily, when within 150 yards of the finish of the cross-country.

Show Jumping

The third and last day of the event, the Show Jumping, took place on August 2nd in a sandy arena surrounded by trees near the stables. The course consisted of 12 fences, including two water jumps, one with a pole over the centre, several spreads, a wall, gate, etc., and entailed several sharp changes of direction.

Both British horses jumped well, each having but one fence down. Stella was clear until the second last, a stile, half of which was in shadow. Bertie Hill placed her perfectly, but at the last moment, instead of jumping, she galloped through the fence, probably thinking that the edge of the shadow was a gap, and consequently finished seventh, Speculation being 13th.

Sweden kept her position, winning the team event, with Germany second and U.S.A. third. The parents of two of the very young American boys, who had come all that way to see them ride, were quite overcome with emotion when they saw their sons standing on the dais during the Olympic Ceremony.

I was very impressed with the Swedish horses, especially Jubal, all three-quarter bred from Government stud farms ; smallish animals, about 15·2, with lots of quality, substance and bone.

The Grand Prix des Nations

The final day of the Games dawned fine and warm, and with it Great Britain's last chance of a gold medal.

Each horse had to jump twice round the course in the main stadium, once in the morning and once in the afternoon, and 20 nations were represented by 58 riders. I walked the course, which consisted of 13 obstacles necessitating 16 individual jumps set out in a grass arena about the size of a football ground.

The first two fences, a brush and triple bar, caused no trouble, then after circling left round the end of the arena came three fences, parallel bars 4 feet 8 inches with a 5-foot

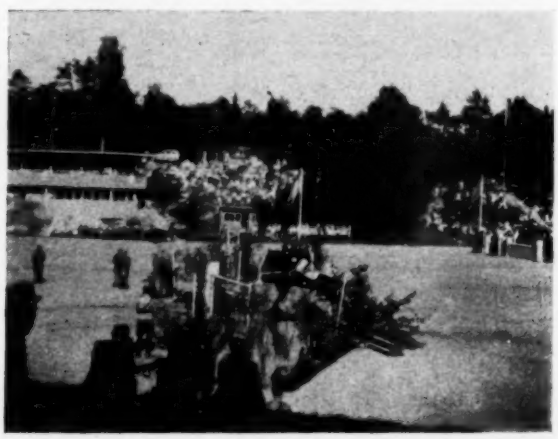


FIG. 7.—Show Jumping Arena: Stella at Water with pole, and Mr. Hill.

spread, a post and rails 4 feet 9 inches and then a wide spread of two series of yellow planks 4 feet 8 inches high and 6 feet wide ; a number of horses failed to clear this jump. After circling right down the outside of the arena came a treble : first a wattle gate 4 feet 7 inches, then a water puddle 9 feet wide, and lastly, a log wall 5 feet high and 34 feet from the water. The next fence, No. 7—a triple brush 4 feet 11 inches high and 7 feet broad—for some reason caused a lot of trouble and many refusals ; one Japanese horse fell into it and it took 20 minutes to re-erect it. After this the rider circled right across the end of the stadium and met three fences which proved one of the deciding factors of the competition. First came double-parallel rustic gates, 4 feet 7 inches with a 7-foot spread, followed by parallel rustic poles with brush in the centre, 4 feet 6 inches with a spread of the same dimensions, the distance between these two fences being 24 feet. Then came a large V-shaped cream coloured wall 5 feet 3 inches high and only 69 feet from the double. This was followed, 46 feet farther on, by a bank of flowers and rail at 4 feet 10 inches.

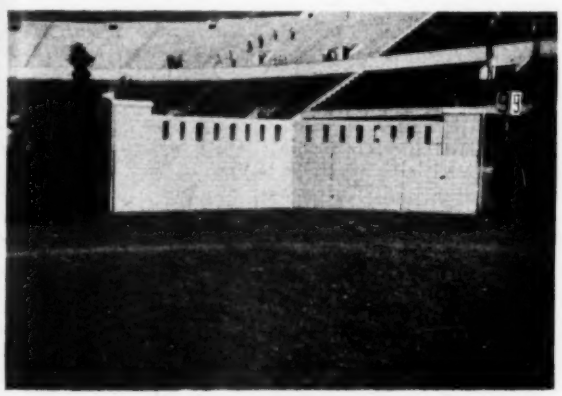


Fig. 8.—The Big Wall.

The course then went round the end of the stadium, where the second most difficult sequence of fences lay, consisting of a water jump, 16 feet wide, followed 90 feet away by a high gate, 5 feet 3 inches ; only one horse, Aherlow, jumped these two fences clean in both rounds. The competitor now turned left for the final obstacle, No. 13, a bank of green flowers with parallel bars 4 feet 11 inches high with a spread of 7 feet 6 inches.

Aherlow, ridden by Lieut.-Colonel Stewart, was the first British horse to jump at 8.20 a.m. and had 12 faults, hitting the third jump and both fences of the double. Nizefella, ridden by Mr. White, came next and jumping brilliantly, had four faults at the gate. After two horses in each team had jumped, Italy led with 12 faults and Great Britain and Portugal were equal second with 16. The first sensation of the competition then occurred, when the third Italian horse failed to enter the arena, as he was not ready, and was disqualified.

Next came Foxhunter's disastrous round. He jumped the first four fences clean then hit the parallel planks behind, approached the double too slowly but managed to jump it and was practically standing still when he miraculously cleared the big wall, and in doing so almost shot Colonel Llewellyn off, and stopped at the bank of flowers. For several agonising seconds Colonel Llewellyn hung precariously over the horse's shoulder, with one spur wedged under the side of the saddle keeping him from falling off, and then succeeded in struggling back. He then hit the bank of flowers and clearing the water with ease, hit the gate and had 16¾ faults.

At the end of the morning round the scores were : U.S.A. 23, Portugal 24, Argentina 28, Brazil 28½, Germany 32, Great Britain 32¾, Spain 35, France, Sweden and Mexico 36. F. Thiedemann (Germany) on Meteor, riding brilliantly, had jumped the only clear round. For those who doubt the value of dressage as training it is interesting to note that Meteor is a high-class dressage horse, capable of competing in the Grand Dressage, and it was an education to see him go fast at the water then shorten his stride and slow down smoothly before jumping the gate perfectly.

The second round started at 3.15 p.m. before a crowd of 70,000 excited spectators, and almost immediately Argentina were out of the hunt as their first horse went lame halfway round and had 20½ faults.

Lieut.-Colonel Stewart, riding Aherlow beautifully, had four faults at the puddle and after one horse from each nation had jumped we had moved up to second place behind U.S.A., with France third.

Mr. White, on Nizefella, again jumped brilliantly for four faults at the water where his horse just touched the edge of the tape with one hind foot, so close that some of the judges were in doubt if it was a fault. Had he not had this fault he would have won the gold medal for the best individual performance.

With bated breath we watched Russell (U.S.A.) on Democrat, and when he finished with 16 faults, Great Britain were in the lead for the first time with one horse from each nation left to jump.

Foxhunter Makes Amends : Britain's One Gold Medal

All, therefore, depended on Foxhunter, and when he entered the arena the tension was such that one could hardly bear to watch. But this was a different horse and rider from those seen in the morning ; it was Foxhunter and his

Fig. 9.—Foxhunter and Colonel Llewellyn.

famous rider at their best. Jumping fence after fence smoothly and without effort, he completed a faultless round, probably the best which he had ever jumped. As he cleared the last fence a roar of applause came from the 70,000 spectators, and this well-loved horse had ensured that Great Britain had at last won a gold medal ; incidentally, the first ever to come to this country for an Olympic equestrian event.

Chile were second, their last horse also doing a clear round, and U.S.A. third. Five horses, including Nizefella with eight faults, then jumped off over the first six fences, some

raised to 5 feet 11 inches, for the individual championship.

Alibaba (France) went first and brilliantly ridden by P. J. d'Oriola, completed a clear round, going very fast, to win the individual gold medal. Christie (Chile) was second, on Bambi, and Thiedmann (Germany) third.

Mr. White, on Nizefella, going a bit faster than he liked in order to beat the Frenchman's time, hit three fences and, to the regret of all, failed to get a place. If anyone deserved a medal he did, as his consistency and calmness during the most critical period of the competition were beyond praise.

The Olympic Ceremony followed, and after waiting throughout the Games to see a British victory, it was indeed a great moment when our team stood together on the dais and the strains of " God Save the Queen " filled the stadium and the Union Jack slowly rose to the top of the flagstaff.

The Final Ceremony

The final ceremony and extinguishing of the Olympic flame followed, again a moving moment, more especially when the great crowd sang the Finnish National Anthem. I should think that every Finn and Swede present—man, woman and child—joined in, the deep voices of the men blending with the beautifully clear voices of the women.

Like everyone to whom I spoke, I was filled with admiration at the excellent organisation of this Olympiad, which must have taxed to the full a small country like Finland. Every event in the stadium, except the marathon, took place within a minute of the advertised time. The football final was staged there at 7 p.m. on the evening preceding the jumping, yet the course was up and the arena ready before 6 a.m. next morning.

The veterinary arrangements were on a par with everything else, a very well-equipped hospital being situated at the stables staffed by Army veterinary officers and other ranks, all of whom were most efficient and helpful.

One evening I attended a party given to the veterinary officers of the visiting nations by the Finnish Army Veterinary Association. It started at 6 p.m. and ended about 3 a.m., and throughout the evening the 20 people present continually drank toasts to each other in vodka. Our admiration for the Finns was already great, but when, at the end of the party, they were the only people unaffected by the lavish hospitality, they went up still further in our estimation. The only lady present was a veterinary student in her final year, representing Holland.

The great weight carried by the English-speaking nations in the Olympic Games and the esteem in which they are held is, perhaps, not appreciated by the general public. This was well exemplified at a banquet held by the Organisation Committee of the XVth Olympiad, at which I had the honour of representing the British Equestrian Team. There were about 150 guests and five speeches were delivered during the evening by Chairmen of Council from various nations, the most impressive being that of Lord Burleigh. In all cases the speeches were in English with the exception of a few introductory remarks in French.

It should not be overlooked that at Helsinki we were competing against military teams or teams subsidised by their respective Governments, composed, in most cases, and especially in the Three-Day Event, by riders with many years' experience of these competitions. As a contrast, Mr. Hill, in the British Team had never ridden a horse in dressage in his life before starting training in January, 1952. No nation competing had fitter, sounder or better-turned-out horses than Great Britain, and great credit is due to Captain Tony Collings (trainer), Mr. Ffitch (head lad) and the girl grooms, whose unceasing care and hard work over a period of eight months made this possible. Herr Waetjen, the dressage instructor, also deserves great praise, as never before have British horses done so well in dressage.

We now look forward to the XVIth Olympiad to be held in Australia in 1956, where it is to be hoped that Great Britain will again be represented in the equestrian events. This depends on the support given by the people of this country. We have the horses and the riders : all they require is the opportunity.

The performance put up by both teams in this Olympiad proves that we need fear no foe, so " Here's to the British Equestrian Team at the XVIth Olympiad, and Good Luck to it ! "

CYCLIC CHANGES IN SPERMATOGENESIS IN RAMS*

BY

R. M. C. GUNN, D.V.SC., B.SC.AGR., M.R.C.V.S.

Professor Gunn pointed out that investigation into the fertility of animals was backward and of little account until after the first world war when new conceptions of hormones and vitamins stimulated physiologists and veterinary scientists alike.

It was perhaps not surprising to find that the problems of sterility were the first tackled mainly from the aspect of bacterial and other infections. Soon it was realised that temporary infertility and low fertility were far more widespread, if less spectacular, than sterility.

Stud owners and breeders, generally, became more concerned at the great importance of low fertility in their flocks and herds and saw that they must enlist the assistance of the scientist in solving their problems. This co-operation probably was stronger to-day than at any time in the past and it had assisted in delineating the importance of one of these problems, namely, to determine the nature of the cyclic changes in spermatogenesis in breeding rams.

The nature of the seasonal cyclic changes in reproduction in many of the wild animals and birds had been studied. Some of the dramatic manifestations of these cyclic changes, such as those shown by birds, which were responsible for their migration over hundreds of miles, of deer as was shown in the shedding of coat, growing of antlers and even in the behaviour of the renal guinea-pig, were then mentioned. In the males of the species which did not show external signs of a definite rutting period, seasonal sexual cycles had not long been recognised. Indeed, Radulesco (1933) concluded from an examination of the histological changes in the testes of rams at many seasons of the year that no seasonal cycles in spermatogenesis occurred. Roux and Hoffman (1935), working with merinos in South Africa, found that the sexual activities of rams were continuous and that they did not become impotent at any particular time of year. Other workers, however (Gunn, 1936, 1938 ; Gunn, Sanders & Granger, 1942 ; McKenzie & Berliner, 1937), had shown that seasonal changes in the semen of rams kept under natural conditions were most marked in hot districts and least apparent in cold ones. Such changes occurred without any concurrent nutritional deficiency.

By the artificial reproduction of raised temperatures within the testes numerous workers had been able to study the particular type of degeneration which occurred. It had also been shown that pneumonia and several other conditions, and fly-strike, had caused a marked seminal degeneration,

* Portion of Presidential Address to Section L (Veterinary Science) at the A.N.Z.A.A.S. meeting, 1951.

(*Continued on page* 581)

often accompanied by a rise in body temperature. On the other hand, it was necessary to apply extremes of cold (Chang, 1948) before seminal degeneration took place. It was therefore concluded that the testes were less susceptible to damage at lower than at higher than normal temperatures.

Hormones

Of the influence of the endocrine glands upon spermatogenesis, knowledge was most advanced on the part played by the thyroid gland. Berliner and Warbritton (1937) suggested that the lowered fertility of rams in the hot summer months might be due to the low level of activity of the thyroid at that time, since they found that thyroidectomy interfered with spermatogenesis. They were able to demonstrate that thyroxine prevented seminal degeneration due to seasonal heat and hastened the recovery of rams already affected. Bogart and Mayer (1946) had confirmed and extended these observations, having shown that rams given thiouracil exhibited "summer sterility" even in winter, while Moule (1951) recently had shown the practical value of therapy in the tropical sheep breeding areas of Central Queensland.

Diet

The effect of dietary change upon spermatogenesis had been recognised since Moore and Samuels (1931) showed that starvation and inanition would disorganise spermatogenesis completely and that certain deficiencies had the same effect (Guilbert, Miller & Hughes, 1937 ; Moore, 1939). From a series of studies, Gunn, Sanders and Granger (1942) and Sapsford (1951) had shown that in Australia the greatest deficiency affecting spermatogenesis in rams was one of carotene, resulting from ingestion of mature and dry pasturage over long periods.

Light

Since Schafer's (1907) original suggestion of the relationship between bird migrations and hours of daylight, the importance of light in controlling reproductive processes had been appreciated increasingly. Marshall (1940) and Bissonnette (1941) showed that ruminants, unlike many other vertebrates, were stimulated to increased sexual activity by a diminution of light. The optimum semen characters of rams examined by Yeates (1949) were found to occur during periods of decreasing exposure to light, while Moule (1950) had shown that libido in rams was stimulated by a rapid decrease in hours of daylight.

If these factors were related to one another, the biological effect might be summarised by saying that in cold regions seasonal cycles in spermatogenesis were controlled mainly by the duration of the hours of daylight, and in the hotter and more tropical areas mainly by diet, temperature and thyroid activity.

References

Berliner, V., & Warbritton, V. (1937.) Amer. Soc. An. Prod. Proc. 13th Annual Meeting (November 26th to 28th, 1937). p. 137-142.

Bissonnette, T. H. (1941.) *Physiol. Zool.* **14.** 379.

Bogart, R., & Mayer, D. T. (1946.) Res. Bul. 402, University of Missouri, Columbia, Missouri.

Chang, M. C. (1943.) *J. Exp. Biol.* **20.** 16-22.

Guilbert, H. R., Miller, R. F., & Hughes, E. H. (1937.) *J. Nutrit.* **13.** 543.

Gunn, R. M. C. (1936.) *Past. Rev.* **46** (2) : 142 (February 15th, 1936).

———. (1936.) Bull. 94, Council Sc. and Ind. Res., Melbourne.

———. (1938.) *Past. Rev.* **48** (9), 991 (September 16th, 1938).

———, Sanders, R. N., & Granger, W. (1942.) Bull. 148, Council Sc. and Ind. Res., Melbourne.

McKenzie, F. F., & Berliner, V. (1937.) Res. Bul. 265, University of Missouri, Columbia, Missouri.

Marshall, F. H. A. (1940.) *J. Exp. Biol.* **17.** 139-146.

Moore, C. R., & Samuels, L. T. (1931.) *Amer. J. Physiol.* **96.** 278.

Moore, L. A. (1939.) *J. Nutrit.* **17.** 443.

Moule, G. R. (1950.) *Aust. Vet. J.* **26.** 84-87.

———. (1951.) (Personal communication.)

Radulesco, A. (1933.) *Ann. Inst. Nat. Zootechn. Roum.* **2.** 152-154. *Abst. Vet. Med.* **30** (8). 376 (1935).

Roux, L. L., & Hoffman, F. E. (1935.) *Farming in South Africa.* **10.** 449-453.

Sapsford, C. S. (1951.) *Aust. J. Agric. Res.* **2.** (3).

Schafer, E. A. (1907.) *Nature.* **77.** 159-163.

Turner, C. W. (1938.) *J. Dairy Sci.* **21.** 99-100.

Yeates, N. T. M. (1949.) *J. Agric. Sci.* **39.** 1.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work, but must be of a general nature—questions cannot be considered in which information is sought regarding diagnosis or treatment of specific cases, nor for which solely a private reply is desired. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Restraint of Bulls

Q. 416.—*If a bull pulls out his ring and in doing so tears away the nasal septum and nostrils, is there any alternative site for the ring to be replaced ?*

If not, what method of restraint would you recommend?

A.—When a bull pulls out his ring and the damage is so great that the septum and nostrils are torn away there is no alternative site. In cases where the nostrils are intact rings have been inserted in the wings, but they tear out through the tissues when restraint is applied. Leather or metal blinds and masks are supplied in various designs and provide a certain degree of restraint under certain circumstances. A well-fitting halter of suitable strength with a chain attached to a ring sliding on an overhead wire affords considerable restraint and at the same time gives the animal some freedom. If a halter is used some provision must be made for securing the animal periodically so that the halter may be taken off for cleaning and the head groomed to prevent the formation of sores. The bull should be fed in a yoke and becomes accustomed to being secured in this way. There are several types of yoke that can be operated from outside the bull box.

The writer favours the use of the combined bull box, bull yard and service passage, arranged so that the attendant and the bull need never be in the same compartment, and the cows can be driven in and out without difficulty.

Hair Growth in Dogs and Cats

Q. 417.—*What mechanisms control* (1) *the marking of the hair in dogs and cats, and* (2) *the growth of new hair?*

A.—Neither of the two separate mechanisms referred to in this question is well understood.

(1) The colouring and marking of the coat is largely due to genetic factors. Colours apparently identical in even closely related breeds, however, may be inherited in very diverse ways. Winge (1950), who has written a recent summary on this subject in dogs, describes at least 16 different factors, some of them with many recessives, which influence the colour and texture in the seven breeds which he studied.

With regard to the cat, the situation is even worse, as little recent work has been published. In this species, the geneticists have been most interesfed in the problem of the male tortoiseshell.

Environment has some small influence on coat coloration. The gradual darkening of the "points" of the Siamese,

for example, has been shown to be due to decreased environmental temperature (Iljin, N. A. & Iljin, V. N., 1930).

(2) The change of coat, when the normal replacement rhythm of individual follicles is at once speeded up and generalised, is, again, an almost unknown subject.

However, recent experiments with other fur-bearing animals, ferrets and mink, have shown that a continual exposure to artificial " short days " of seven hours light, with a following five hours of darkness, causes a moult to occur (Hammond, J. (Jun.) 1951). This suggests that in these animals, and probably in our domesticated carnivores, it is the occurrence of a succession of apparent days and nights which, after a long latent period, causes the new coat to be formed.

It is certain that an important part is played in moulting by the endocrine complex, particularly the adrenal cortex and the gonads, while mention should be made also of the casting of hair secondary to disease conditions.

REFERENCES

BARBER, RUTH C. (1927.) *Bibl. Genet.* **3.** 1–86.
HAMMOND, J. (Junr.). (1951.) *Nature.* **167.** 150–151.
ILJIN, N. A., & ILJIN, V. N. (1930.) *J. Hered.* **21.** 309–318.
WINGE, Ö. (1950.) " Inheritance in Dogs." New York : Comstock Publishing Co. Inc.

* * * * *

CORRESPONDENCE

Malignant Catarrhal Fever of Bovines

SIR,—You invite criticism of the replies published in your " Question and Answer " series and I feel I must join issue with your respondent who replied to question No. 414 in *The Veterinary Record* of June 21st, 1952. The disease " contagious bovine malignant catarrh," which is well known in Europe and certain parts of Africa, has been fully described by such authors as Mettam (1924), Gotze (1930), Daubney and Hudson (1936) and Piercy (1952).

Unless your respondent is referring to some other non-specific disease, there are gross discrepancies between his account and what is seen in affected cattle in this territory. For example, I can see no reason for confusion with " transit fever " since one of the peculiar features of true bovine malignant catarrh is the absence of pneumonic changes. Again, your respondent makes no mention of enlargement of the superficial lymph glands which occurs so regularly that confusion with East Coast fever commonly arises. Furthermore, I have studied some 150 cases of bovine malignant catarrh at this institute during the past two years and I do not recall a single instance where the feet were affected.

This respondent's remarks concerning recovery and treatment are equally difficult to understand. Recovery is usually seen only in the mild form of malignant catarrh such as occurs in experimental animals. I would place mortality in sub-acute cases as high as 98 per cent. Finally, there is no known treatment, including antibiotics such as penicillin and aureomycin, of any avail against this disease.—Yours faithfully, S. E. PIERCY, *Chief Veterinary Research Officer*, Department of Veterinary Services, Veterinary Research Laboratory, P.O. Kabete. *August 5th*, 1952.

REFERENCES

DAUBNEY, R., & HUDSON, J. R. (1936.) *J. comp. Path.* **49.** 63.
GÖTZE, R. (1930.) *Dents. Tierärztl. Wschr.* **38.** 487.
METTAM, R. W. M. (1923.) 9th and 10th Reps. Div. Vet. Ed. Res. S. Africa. 395.
PIERCY, S. E. (1952.) *Brit. vet. J.* **108.** 35.

SARCOPTIC MANGE IN A PIG

(Captions to Figs. on Art Plate)

PLATES: Nos. 1, 3, 5 and 6 are of sections from BIOPSY I. Nos. 2 and 4 are of sections from BIOPSY II.

FIGS. 1 and 2.—Show the comparative condition of the interfollicular areas of the epidermis and dermis before and after treatment.

FIGS. 3 and 4.—Show the comparative condition of the follicular areas before and after treatment.

FIG. 5.—Shows an area of necrosis from BIOPSY I.

FIG. 6.—Also from BIOPSY I showing the region of a hair follicle with a parasite in an epidermal burrow flanked on the one side by the follicle itself, and on the other by an ulcerating area of necrosis. Magnification: Approx. *X40*.

CLINICAL COMMUNICATION

TREATMENT OF SARCOPTIC MANGE IN A PIG BY MAGNESIUM SULPHATE SOLUTION

P. W. DAYKIN AND E. F. LEWIS
ROYAL VETERINARY COLLEGE

The use of magnesium sulphate solution as an anti-sarcoptic dressing was prompted by a private communication (Lamont, 1951) in which its use on pigs in Northern Ireland was mentioned.

The subject of the present report was a large white hog pig about three score in weight and approximately 16 weeks of age, showing severe lesions along the back, on the neck and on the shoulders. These areas showed marked thickening of the skin, deep fissures and copious exudation, while less severe lesions were obvious on and in the ears, on the legs and, to a lesser degree, along the flanks.

The clinical diagnosis of sarcoptic mange was confirmed by skin scrapings and by a skin biopsy taken from the neck approximately 2 inches below the crest and anterior to the left shoulder, where the lesions were most severe.

On January 25th, 1952, 14 fluid oz. of a saturated solution of magnesium sulphate were applied evenly by hand over the whole body, some solution actually being poured into the ears.

This application was repeated on February 1st, and on February 27th a second biopsy sample was removed from a site identical with that of the previous biopsy, but on the right of the neck.

Throughout the whole period of the trial the diet and husbandry remained unchanged except for increases in the quantity of food commensurate with the growth of the pig.

RESULTS

Clinical.—An immediate reaction to the dressing was noticeable in the areas affected by the parasites, where marked hyperaemia showed within five minutes of its application, even though a minimum amount of friction was used. However, despite this local reaction and also the pouring of some solution into the ears, which were excoriated and bleeding, no increase in irritation or pain was shown, and from the time of the first dressing the pig began to thrive, roughly trebling its weight by March 31st, when the animal was sold.

On the day subsequent to the first dressing, crystals of the sulphate were apparent on the skin but no signs of hyperaemia were present. The pig was eating well and was normal in all other respects.

By February 1st the improvement was most striking. The skin was clean, and all obvious lesions, apart from those in the joint flexions, had disappeared, whilst the pruritus was lessened considerably. When dressed on this date hyperaemia was again shown in the affected areas, but the effect was also temporary and no increase in irritability was apparent.

On February 9th, following a clinical examination, it was agreed that no further dressings were necessary.

PATHOLOGICAL: BIOPSY REPORTS: *Vide* photomicrographs. *Macroscopic* differences were striking. The first piece of tissue consisted of a markedly thickened and encrusted epidermis, a thickened dermis and a subcutaneous fat layer of a total depth of $\frac{1}{2}$ inch. On the other hand, the second sample had very thin epidermal and dermal layers, whilst the fat layer was not penetrated by the biopsy incision even at a depth of 1 inch

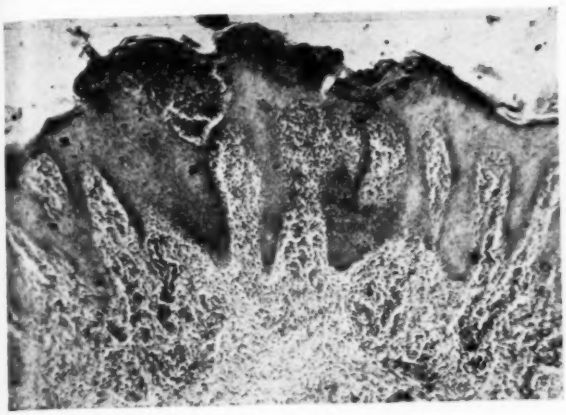


FIG. 1.

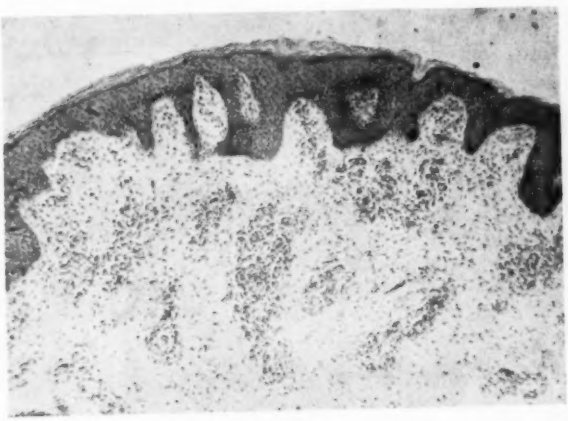
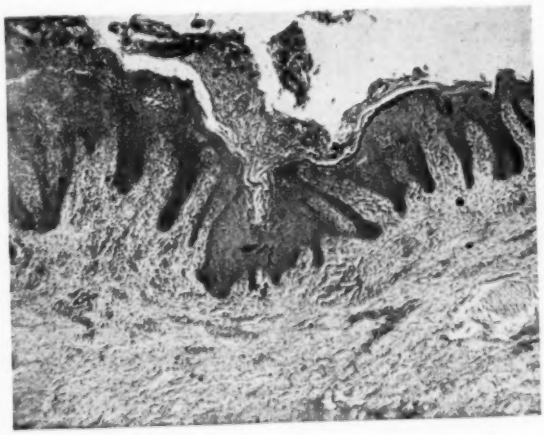


FIG. 2.



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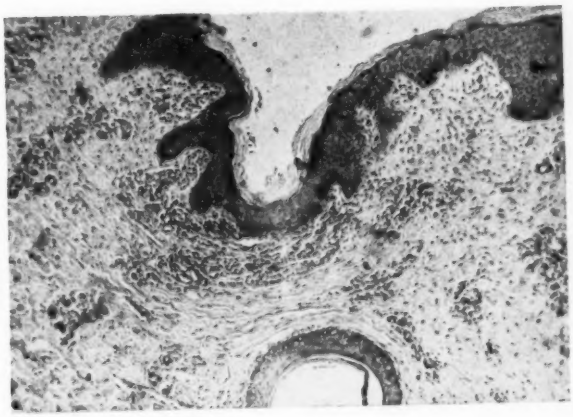

FIG. 4.

FIG. 5.

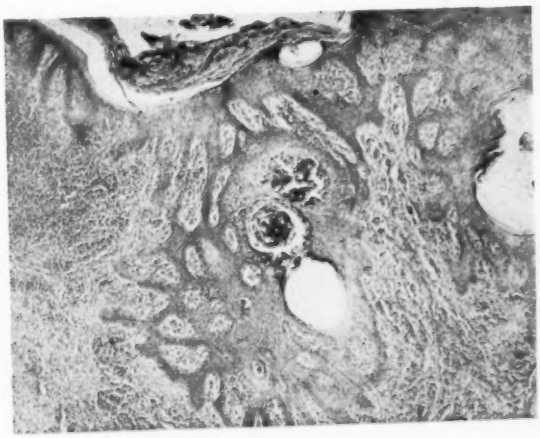

FIG. 6.

BIOPSY I. *Microscopically* the first biopsy showed a thick keratin layer loosely attached to the epidermis proper, which was itself thickened, eroded and necrosed in parts and showed varying amounts of haemorrhage. The hair follicles were enlarged and contained large amounts of debris. There was deep invasion of the dermis by epidermal tissue and eosinophilic leucocyte invasion of the dermal papillae was marked. Parasites and eggs were demonstrable in numerous burrows within the keratin layer, though no parasite was observed below this layer except in the vicinity of hair follicles (Hutyra, Marek & Manninger, 1948).

BIOPSY II. This showed striking differences. The keratin layer was extremely thin and strongly adherent to the underlying epidermal layers. The epidermis was relatively thin and regular with no signs of either erosion or necrosis. The hair follicles were small and clear, and although capillaries were still plentiful in the dermal papillae, there were no signs of eosinophilic leucocyte invasion.

No parasites or eggs were demonstrable.

SUMMARY

A clinical report is presented of the treatment of a case of sarcoptic mange in a pig by a saturated solution of magnesium sulphate. The results, both macroscopic and microscopic, are described and illustrated by photomicrographs. A marked improvement is indicated following two dressings only, which were applied at an interval of seven days.

REFERENCES

HUTYRA, MAREK & MANNINGER. "Special Pathology and Therapeutics of the Diseases of Domestic Animals." [Fifth edition : 1948.] Vol. III, p. 620.

LAMONT, H. G. (1951.) Verbal communication.

ABSTRACTS

The Annual and Seasonal Incidence of Anthrax in Various Countries. Climatic Effects and Sources of Infection*

In this article an analysis is given of certain figures relating to outbreaks of anthrax taken from the official reports of 36 countries. The figures, which are set out in the form of an Appendix, relate to the incidence of outbreaks by years and by months, mostly over the period 1927 to 1939. This was selected as representing a recent period unaffected by war or immediate post-war conditions, but where considered necessary figures were amplified by reference to published data. In the case of Britain, for instance, the trend from 1911 to 1947 was examined separately in the different species, while the species of animal affected among upwards of 12,000 cases reported from 1920 to 1939 was noted.

The object of the work was (1) to note the trend of outbreaks and their seasonal incidence, if any ; (2) to discuss the reason for seasonal incidences found to be statistically significant, and for any wide deviations of incidence ; (3) to study any influence of climate on the distribution of outbreaks ; and (4) to examine questions relating to the sources of anthrax in the various countries, with special reference to Britain. The regional distribution of the disease in countries and the animal species chiefly affected has also been examined, while the considerable mass of suitable figures has been subjected to statistical analysis.

2. Most countries showed a decreasing and usually significant trend to infection. With Great Britain, Belgium, Holland, Denmark, Norway, Switzerland and Germany, the highest incidence was in the winter months ; with other countries, except possibly Sweden, it was in the summer. With a few countries the seasonal incidence in cattle and sheep, as well as the regional distribution within countries, have been examined separately.

3. In view of the important influence of air temperature on sporulation of the anthrax bacillus, the relationship of air temperature to incidence has been studied, with particular reference to the cooler countries. A table of average daily maximum temperatures for a number of countries is given, and also charts showing certain January and July isotherms for Europe and the United States.

4. With regard to anthrax in Great Britain, there is no correlation over a series of years between incidence and the cattle population. Data regarding the source of infection for 1919 to 1937 show the outstanding importance of imported artificial feeding-stuffs, and this indeed may apply to other diseases than anthrax. Significant positive correlations were established between anthrax and annual imports of animal foodstuffs, both in respect of total imports and most individual products. There are also significant positive correlations between anthrax in Britain and certain products from particular countries, namely, cereal by-products from India, oil cakes and meal from India and Egypt, feeding seeds from Morocco and Turkey. With regard to imports of skins and skin products, there is a strong correlation with imports of bristles.

During the period 1911 to 1937, anthrax was over four times as prevalent in Scotland as in England, in proportion to the cattle population.

The sources of infection in certain other countries are also discussed. Particular reference is made to France, where in spite of the considerable importation of feeding-stuffs, the incidence peak is in summer.

* * * * *

Nutritive Value of Colostrum for the Calf*

Experiments were designed to discover whether secretion obtained from pre-milked cows is of equal benefit to newborn calves or less than normal colostrum. Other workers had also shown that the composition of milk at calving, when the dams had been pre-milked, varied in regard to certain qualities in proportion to the length of time for which the cows had been milked *pre-partum*, and that calves of dams that had been milked before calving were more difficult to rear.

Similar groups of calves used for the experiment received respectively, for the first 24 hours of life, colostrum, *post-partum* secretion from cows pre-milked for a period of 16 ± 2 days before calving, and milk. In these experiments all calves survived which received normal colostrum, whereas two died which had received milk and three in the group receiving *post-partum* secretion. All of the five calves died from *Bact. coli* infection, three of them having a septicaemia; two of these revealed peritonitis and pleurisy.

* **The Annual and Seasonal Incidence of Anthrax in Various Countries. Climatic Effects and Sources of Infection.** MINETT, F. C. (1952.) *Bulletin de l'Office international des Epizooties.* **37.** 238-300. (39 refs., 13 tables and appendix.) In English.

* **The Nutritive Value of Colostrum for the Calf. V.—The Effect of Pre-partum Milking.** ASCHAFFENBURG, *et al.* (1951.) *Brit. J. Nutrit.* **5.** 343-349.

XUM

These findings may indicate a variation in resistance on the part of the calf but the disease was basically the same in all instances.

The authors draw attention to the fact that the relatively poor performances of the calves on treatments two and three are in keeping with the reduced intake of colostral globulins and those receiving small quantities of immune lacto-globulins. Calves receiving colostrum increased in weight during the 21-day experimental period, but those receiving milk or the *post-partum* secretion of pre-milked cows, all lost weight. It is considered that increasing the quantities of the two types of milk would not have compensated for the decline in the agglutinin content of the milk.

It is pointed out that on the majority of farms pre-milking is restricted to the relief of udder distension on the last day or two before calving—which would have little, or no, influence upon the quality of the secretion.

[When discussing pre-milking it is, therefore, all the more important to take into account the length of time at which the procedure commenced, before assessing the possible risks involved.—*Abstractor.*]

N. S. B.

NOTES AND NEWS

Diary of Events

Oct. 2nd.—An Extraordinary General Meeting of the East Midland Division, B.V.A., will be held at The Priory, Thurgarton, 2.15 p.m.

Oct. 2nd.—Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, 6 p.m.

Oct. 3rd.—General Meeting of the North of England Division, B.V.A., in the Agricultural Lecture Room, King's College, Newcastle upon Tyne, 2.30 p.m.

Oct. 3rd.—Meeting of the North of Ireland Division, B.V.A., at Belfast (Queen's University), 7.15 p.m.

Oct. 4th.—Autumn Meeting of the North of Scotland Division, B.V.A., at Inverness (Drumossie Hotel), 4.30 p.m.

Oct. 7th.—Meeting of the Lincolnshire and District Division, B.V.A., at the Grand Hotel, Peterborough, 2.15 p.m.

Oct. 8th.—Annual General Meeting of the Welsh Branch, B.V.A., at Newtown (The Bear Hotel), 2 p.m.

Oct. 8th.—Meeting of the Southern Counties Division, B.V.A., at Southampton (Polygon Hotel), 6 p.m.

Oct. 8th.—Meeting of the Editorial Committee, B.V.A., at 36, Gordon Square, W.C.1, 2 p.m.; Executive Committee to follow immediately.

Oct. 9th.—Meeting of the Midland Counties Division, B.V.A., at Birmingham (Birmingham Medical Institute, 15, Great Charles Street), 2.30 p.m.

Oct. 9th.—Meeting of the Herts and Beds Veterinary Society at 70, Holywell Hill, St. Albans, 7.30 p.m.

Oct. 9th.—Meeting of the Western Counties Division, B.V.A., at Exeter (Imperial Hotel), 2 p.m.

Oct. 23rd.—Annual Dinner and Dance of the Midland Counties Division, B.V.A., at Birmingham (Midland Hotel); Reception, 7.30 p.m.

Nov. 12th.—R.S.I. London Sessional Meeting: Benjamin Ward Richardson Lecture on the hygienic and economic utilisation of offal and by-products of food animals, by H. E. Bywater, M.R.C.V.S., Chief Veterinary Officer, West Ham.

B.V.A. Committee and Council Meetings

It has been decided to hold the next Committee and Council Meetings of the B.V.A. on Wednesday, Thursday and Friday, November 5th, 6th and 7th, 1952, in the following order:—

Wednesday, November 5th:
12 noon. Parliamentary and Public Relations Committee.
2.30 p.m. Veterinary State Medicine Committee.

Thursday, November 6th:
10.0 a.m. Organising Committee.
12 noon. Home Appointments Committee.
2.0 p.m. General Purposes and Finance Committee.

The above meetings will be held at 36, Gordon Square, London, W.C.1.

Friday, November 7th:
11.0 a.m. Meeting of Council at the Connaught Rooms, Great Queen Street, W.C.2.

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CONFERENCE ON METABOLIC DISORDERS AND OTHER PROBLEMS RELATED TO GRASSLAND AND FODDER CROPS AND INNOVATIONS IN ANIMAL HUSBANDRY

The above Conference, which is being organised by the Association, will be held in the Auditorium of the Wellcome Foundation, 183, Euston Road, London, on Thursday and Friday, November 20th and 21st, 1952. Members are asked to note the dates now and further particulars will be published later.

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PERSONAL

Appointments.—The following appointments in the Colonial Veterinary Service are announced: Mr. J. D. Birkett, M.R.C.V.S., Senior Veterinary Officer, Nigeria, to be Director of Veterinary Services, Sierra Leone; Mr. R. Wilson, B.V.SC., to be Veterinary Officer, Somaliland Protectorate.

. . . . .

The *Bury Free Press* reports that Mr. and Mrs. Terry F. Cook, only son and daughter-in-law of Mr. and Mrs. Frank Cook, of Risbygate Street, Bury St. Edmunds, are flying out to New Zealand, where Mr. Cook is taking up an appointment as a veterinary surgeon at Wellington. About six months ago he took his M.R.C.V.S. at the Royal Veterinary College, London.

An Old Culfordian, Mr. Cook started his career in the County Treasurer's Department at Bury St. Edmunds Shirehall. After serving with the R.A.F. as a flight-lieutenant bomber pilot, doing 31 bombing missions and gaining the D.F.C., he decided to study as a veterinary surgeon.

. . . . .

Marriage.—Beckett—Bailes.—On September 6th, 1952, at St. Luke's, Newcastle upon Tyne, Judith A. Bailes, M.R.C.V.S., to Richard L. Beckett, B.SC., M.R.C.V.S.

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R.C.V.S. OBITUARY

HAROLD STAINTON

An Appreciation

The veterinary profession has suffered a great loss in the death of Harold Stainton, who did more than any one of his generation to advance the practice and status of small-animal medicine and surgery.

When he joined Sir Frederick Hobday and Guy Sutton in 1914 the Kensington practice was predominantly an equine one with a busy forge, for the town was teeming with horses. Hobday and Sutton specialised in equine surgery and each day had its quota of two, three and sometimes more operations. Their reputation and skill was such that their patients came from far and wide and Stainton was counted lucky to be privileged to join them. The small-animal side was extensive also and parts of the premises had been converted in order to deal with this work with operating rooms and an X-ray plant.

It was a practice which knew no rest, day or night, and often the surgical work would be continued into the early hours of the morning. Hobday and Sutton took no account of the hour as long as there were jobs to do and service to be rendered. Church Street was the scene of such veterinary activity that one had to witness it to believe that it could be possible.

It was into this dynamic turmoil that young Stainton entered in 1914. He often described his first day. Busy all day, he was given the task of preparing four dogs for operation at night. They worked until 11.30 and then Hobday took him out for food. Walking back about 12.30 his chief suddenly remembered that there was one case which he had not seen. He had promised to pay a visit. The owner was a well-known Duchess. They went to the house, rang the bell, but there was no reply. Hobday threw gravel up to a window, it opened and Her Grace appeared. She was delighted to see them and was profuse in her gratitude. They left in the early hours. They walked back to Church Street, inspected the operation cases, and then Hobday attended to some correspondence. Later, as Stainton climbed wearily to his bed—he lived on the premises—he wondered (so he told me) if he had entered a mad house!

Within a few weeks war broke out and Hobday and Sutton, being on the Reserve, were called to join the Forces. They left the young man in charge and for nearly five years he worked all the hours of both day and night until his chiefs returned.

He became a partner in the firm. About this time there was a great change in the type of work in the practice. The horse practice began to melt away, for the light delivery and brougham horse was the first to succumb to the attack of the internal combustion engine. Within a very short time great studs and lucrative contracts were no more. It became vitally necessary to explore other avenues of work. The forge was closed and the premises were adapted completely to small-animal work. The partners did not sit and wait, as so many others did, for a "close down" because of a lack of the traditional type of work. Work of a completely new character flowed in and the practice continued to be as busy as ever. Such horse work as remained was looked upon as a pleasurable relaxation.

Such was Stainton's life for the next 25 years. He never spared himself in giving service to his patients and clients, and in consequence his clientele extended far beyond Kensington and London. He was respected and loved by dog owners throughout the land. He organised the veterinary services at shows and exhibitions, Cruft's, L.K.A., Metropolitan and Essex, etc., and incidentally earned many pounds for our benevolent funds. He was Veterinary Consultant to The British Goat Society and to the circus at Olympia. He found time to contribute to veterinary literature, present papers and take part in the discussions and social activities of veterinary societies. With H. Ede he did much pioneer work in radiography and physiotherapy.

Harold Stainton's life was not without its setbacks and sorrows and they affected him deeply. Between him and Guy Sutton there was a strong bond of friendship like that of a son and father. Sutton's death, in circumstances somewhat similar to his own, was a great grief to him from which he never really recovered. When he had to vacate the old premises at Church Street at short notice, for the reason that they were considered to be dangerous and liable to collapse, he was much affected, for they had become part of his life. In the midst of this latter trouble his eyes began to fail him and it was discovered that he had cataract. Many men would have been overwhelmed. He met this blow of fate courageously and took the steps necessary to resolve it. The operations were a complete success and a few weeks before his death he and his wife enjoyed a holiday, he, in his own words, "seeing better than he had done for years."

Harold Stainton was a cultured, kind, modest and generous man who never courted the limelight. He was proud to follow his father's profession. He achieved eminence, for he took advantage of every opportunity to enhance his knowledge and competence and his capacity to give service.

He was always calm and collected whatever the occasion and this imperturbability was seen at its best when surrounded by excited people at a dog show. He would calmly produce a long cigarette holder, insert a cigarette with great precision, light it, take a puff or two and then say "Well now we shall have to look into this matter." Hot heads were cooled as if by magic. He was a good organiser and he controlled his veterinary panels in a detached and unobtrusive way. He could get them to turn up at most unearthly hours and without remuneration, for he turned the fees into the benevolent funds.

He was a talented musician and could have ranked high amongst the masters of the violin. He loved good music and attended the concerts whenever possible. His other relaxation was in boxing and he would go as often as was possible to witness championship fights.

He had a dread of retirement and inactivity, and for this reason it is good to know that his end was sudden and he died in harness as he would wish.

J. McC.

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FOOT-AND-MOUTH DISEASE

Foot-and-mouth disease is persisting in the South of England where fresh outbreaks continue to occur in Kent and Sussex.

Compensation Insurance

The *Farming News* states that a Cheshire farmer, Mr. J. Moody, Pack House, Nantwich, has proved the wisdom of being prepared for foot-and-mouth disease. He insured his valuable herd of 130 pedigree attested Ayrshires and 40 pigs under the recently launched Lloyd's national insurance scheme. The premiums were 2s. 6d. a head in the case of cattle and 1s. a head for pigs, a total of £18 5s. When his farm was affected by foot-and-mouth his stock was slaughtered and compensation in the neighbourhood of £20,000 was agreed with the Ministry of Agriculture. Under the Lloyd's scheme 25 per cent. was automatically added to this sum, and Mr. Moody received supplementary compensation of £4,147 5s.

During the month of July Lloyd's underwriters added £40,000 in supplementary compensation to sums paid by the Ministry of Agriculture. The premiums in these cases amounted to less than £300.

Meeting in Copenhagen

From September 17th to 21st delegates from 13 countries, including Great Britain, met at Copenhagen to discuss the development of a co-ordinated plan to prevent widespread outbreaks of foot-and-mouth disease. The meeting recommended that a European foot-and-mouth disease commission should be set up to give advice and help to fight outbreaks of the disease, register stocks of vaccines, and analyse types of viruses.

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ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax:

Berks.—Breezehurst, Moltwood, Hampstead Marshall, Nr. Newbury (Sept. 12th); The Hall, South Moreton, Didcot (Sept. 20th).

Cambs.—New Farm, Whaddon, Royston (Sept. 16th); Greenslade Farm, Clyst St. Mary, Exeter; Shirwell Hill, Shirwell, Barnstaple (Sept. 17th).

Devonshire.—Wertown Farm, Ide, Exeter (Sept. 15th).

Essex.—Theydon Grove, Epping; Valley House, Purleigh, Chelmsford (Sept. 15th); Camsix Farm, Martford End, Chelmsford (Sept. 17th).

Glos.—4, Arton Road, Campden; Manor Farm, Southrop, Lechlade (Sept. 15th).

Hants.—Roxford Farm, Binstead, Alton (Sept. 16th); Hedgerow Beech, Alton (Sept. 18th).

Herts.—Hill Farm, Heydon, Royston; New Farm, Bishops Stortford (Sept. 15th).

Kent.—Cotton's Farm, Staplehurst, Nr. Maidstone (Sept. 19th); Great Knell Farm, Ash, Canterbury (Sept. 20th).

Lancs.—Aspden Fold Farm, Nab Lane, Samlesbury, Nr. Preston (Sept. 12th); Sudell House Farm, Whittingham, Preston (Sept. 15th); Seddon Fold Farm, Bury (Sept. 17th); Ming Mold Farm, Wheelton, Chorley (Sept. 19th).

Norfolk.—Blackbridge Meadow, Hampton Road, Fakenham (Sept. 15th).

Northants.—Station Meadow, Oundle, Peterborough (Sept. 16th).

Oxford.—Littlestead Green Farm, Dunsden (Sept. 16th).

Somerset.—Lower Willtown Farm, Curry Rivel, Taunton; Stembridge Road, Kingsbury Episcopi, Martock (Sept. 15th); Dragon Manor Farm, Templecombe; Highcroft Farm, Gurney Slade, Bath (Sept. 16th); Walronds Park, Isle of Brewers, Taunton (Sept. 17th); Wreath Farm, Chard (Sept. 19th); Wood Farm, Blackdown, Crewkerne (Sept. 20th).

Staffs.—Home Farm, Maer, Newcastle under Lyne (Sept. 20th).

Suffolk (East).—9, Elms Farm, Ringshall, Stowmarket (Sept. 13th).

Suffolk (West).—Lily Farm, Withersfield (Sept. 13th).

Sussex (East).—The Piggeries, Cairo Avenue, Peacehaven (Sept. 18th); Little Fairlight Farm, East Grinstead (Sept. 19th); Selwyn Wood, Cross-in-Hand, Tunbridge Wells (Sept. 20th); The Glebe Farm, Frant, Tunbridge Wells (Sept. 13th).

Surrey.—Teuchley's Farm, Limpsfield, Oxted (Sept. 13th).

Warwicks.—Longbridge Farm, Warwick (Sept. 18th).

Foot-and-Mouth Disease:

Kent.—New Barn Farm, Dymchurch (Sept. 17th); Chapel Cottage Farm, Dymchurch (Sept. 20th).

Sussex (West).—The Brook's Marsh, Upper Beeding, Steyning; Chennells Brook Farm, Horsham (Sept. 15th); Horton Hall Farm, Binstead, Alton (Sept. 16th); Lock Barn Farm, Upper Beeding, Steyning (Sept. 20th).

Fowl Pest:

Essex.—Coney Grey, Nevendon Road, Wickford (Sept. 15th).

Isle of Ely.—4 and 10, Wimblington Road, Doddington, March (Sept. 12th).

Surrey.—Mole Abbey, Ewell Road, East Molesey (Sept. 18th).

Swine Fever:

Cambs.—Haltons Farm, Long Stanton (Sept. 12th).

Ches.—Forest Farm, Norley, Warrington (Sept. 13th).

Lincs.—Southfield Piggeries, Horncastle (Sept. 15th); The Common, Wainfleet, Skegness (Sept. 16th); The Bungalow, Kirton End, Boston (Sept. 19th).

Staffs.—37, Bellgreen Road, Coventry (Sept. 16th); 96, Bolton Road, Wednesfield, Wolverhampton (Sept. 17th).

Warwicks.—Moat Farm, Burton Green, Kenilworth (Sept. 13th).

Yorks.—Bartingdale Farm, Bartingdale Road, Hunmanby, Filey (Sept. 16th).

THE R.V.C. SMALL-ANIMAL FILMS

Those who, at Harrogate, saw the brilliant new series of colour films for which the Royal Veterinary College surgical department is responsible, will be interested to learn that they were flown straight from our Congress to Switzerland by Mr. Gordon Knight, F.R.C.V.S., and shown by him at both the Swiss Veterinary Society's Annual Assembly at Neuchatel and at the Tierspital, Zurich, at the request of Professor Andres. These invitations, we are sure, demonstrate the manner in which such films contribute to the great reputation of British veterinary surgery—and amateur photography.

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Erratum.—"That Slang Term 'Vet.'" (G. Mason, *Vet. Rec.*, **64**, 572): The third sentence in the first paragraph should read: "So far as I know there is no exact legal meaning, etc., etc. . . ." We much regret that through a printer's error the word "no" was omitted and the point of the letter thus lost.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

CANINE FILARIASIS

Sir,—In *The Veterinary Record* for August 2nd, 1952, A. W. Vaughan (page 454) quotes the writer as having reported a marked nocturnal periodicity of circulating microfilariae in filariasis. The statement is incorrect.

Schnelle, G. B., and Young, R. W., *Bull. U.S. Army Medical Department*, September 19th, 1944, reported marked periodicity of circulating microfilariae in the peripheral circulation, the peak being reached at "tea-time," about 4.30 p.m. This was true when a routine feeding was followed in which the animals received their main meal at 2 p.m. to 2.30 p.m. Periodicity was sufficiently marked that at 8.30 a.m. as few as one microfilaria per 0·1 c.c. of blood was seen in a dog which showed 189 microfilariae per 0·1 c.c. at 4.30 p.m.

In repeated tests it was definitely established that microfilarial periodicity is definitely a factor in both accurate diagnosis and in evaluating the results of treatment of the disease.—Yours faithfully, Gerry B. Schnelle, Chief of Staff, The Angell Memorial Animal Hospital, 180, Longwood Avenue, Boston 15, Mass. *September 9th*, 1952.

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THE DESIGNATION "GELDING"

Sir,—Allow me to quote a court case we had here two years ago. A farmer purchased at a large figure what was supposed to be a show pony. Quiet to ride, it had won many prizes both as a show animal and as a jumper, and that year it had been ridden by a girl of nine. Photos of the riders on the pony and the prize-givings were shown in court. My client purchased it in November after the shows had finished and his daughter rode it for a trial and all appeared correct. It was then seven years off. As it was not wanted when the girl went to school, it was turned out for the winter and brought in the following spring. To get it ready for riding it was given a little corn and before long it was unmanageable, showing all the symptoms of a real rig.

The previous owner had purchased it on a veterinary surgeon's certificate as sound and correct and it was quiet until it was eight years of age.

This rig showed scars of having been operated on, but that does not necessarily mean that the testicles had been removed.

The old-fashioned way of cutting "proud" or "rough" was the principal cause of schirrous cord and I never remember a case where it altered the behaviour of one. I do recall one, however, in which about ½ inch of epididymis had been left on ("cut proud") and which required a second operation the following spring.

At the present time I have a pony, five years of age, under observation because I am expecting it to develop into a rig in the spring and probably Mr. Tutt's gelding will do the same.

This animal up to the present has been a perfect child's pony in every way and it is only this summer that there has been any doubt whatever about it. In any case where there is any possible doubt, the only safe thing to do is to call the animal a rig.—Yours faithfully, G. C. Lancaster, Eastwick House, Evesham, Worc. *September 13th*, 1952.

REPORT OF THE COMMITTEE ON LICENCES

Sir,—There may be some justification for the satisfaction felt and expressed by the President and Councillors of the R.C.V.S. at the conclusions of the "Report of the Committee on Licences under Sect. 7 of the V.S. Act of 1948."

Probably the profession as a body might have cause for gratification that an impartial committee should advise that the issue of licences to unqualified people, permitting them to treat sick animals, should be drastically curtailed; and that animal welfare societies should replace licensees by veterinary surgeons.

Any measure which protects the animal and at the same time enhances the importance and status of our profession as a whole must be acclaimed. Yet, if this "Report" is implemented to the full, I can foresee a further rapid deterioration in the practices of small-animal practitioners wherever these free clinics are in competition.

Hitherto the clinics have indiscriminately treated animals of the poor and rich alike, many of whose owners, I feel sure, are ignorant of the professional attainments (or absence thereof) of the persons undertaking the work. And whilst such services are free, they have queued up for them, to the detriment of the local practitioner and the animal.

In future, if these clinics are to be manned by qualified men, what incentive will remain for the average animal-owner to pay for the services of a private practitioner, when he can secure free services from a man of equal qualification?

It is lamentable to think how practices (which have either been purchased at high figures or have been built up over the years) have deteriorated through the inroads of these much-advertised clinics all over the country.

Formerly the established small-animal practitioner had some consolation in knowing that the free clinic could offer only unqualified help, but if, in future, every clinic shall be conducted by an M.R.C.V.S., then the man with a practice had better turn the latter into a "free" clinic with a contribution box, and so retain some, at least, of the clients.

The whole question of animal clinics in no way affects (as yet) the large-animal practitioner, who can afford, therefore, to be complacent about the problem; but I have definite evidence in my possession that the small-animal practitioner is to a large extent being forced out of business by the wealthy and powerful advertising institutions whenever and wherever they care to set up in opposition; and new clinics are opening almost every week.—Yours faithfully, H. Kirk, 658, Finchley Road, N.W.11. *August 30th*, 1952.

[The Editor wishes to point out that, while the main recommendation of the Committee is that treatment should be carried out by properly qualified people, the report lays almost equal emphasis on the importance of all animal welfare societies making it quite clear to the public that they exist for treatment of animals of the poor.]

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange	Sheep Scab	Swine Fever
16th to 31st August, 1952	71	9	9	—	—	24
Corresponding period in—						
1951	10	2	9	—	—	119
1950	8	3	1	—	—	42
1949	8	2	5	—	—	—
1st Jan. to 31st August, 1952	487	478	151	—	1	644
Corresponding period in—						
1951	299	28	595	—	4	755
1950	258	19	102	—	19	93
1949	130	13	357	—	29	5

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at August 31st, 1952, was as follows:—

England	Wales	Scotland	Total (Great Britain)
43,105	24,851	20,977	88,933